

Alexander Khanov

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Education

- Ph.D. in Physics, University of Rochester (2004)
Thesis: Measurement of the $t\bar{t}$ production cross-section at $\sqrt{s} = 1.96$ TeV using life-time tagging. Adviser: Prof. R. Demina
- M.S. in Physics, Moscow Institute of Physics and Technology, Russia (1989)

Positions

- Graduate Research Assistant, University of Rochester (2003-present)
- Graduate Research Assistant, Kansas State University (2000-03)
- Scientific Associate, CERN (1998-99)
- Project Associate, CERN (1996-98)
- Researcher, Institute for Theoretical and Experimental Physics, Moscow, Russia (1989-99)

Professional experience

- 2000-present: DØ experiment at the Tevatron, Fermilab

Wrote a track finding algorithm (Histogramming Track Finder, HTF) for the DØ central tracker. All DØ data collected since June 2002 was reconstructed using HTF. Developed a heavy-flavor jet-tagging algorithm (Counting Signed Impact Parameter, CSIP), which has been approved for general use by the collaboration. Using this algorithm, measured the $t\bar{t}$ production cross-section in the lepton+jets channel. Observed the $\chi_c \rightarrow J/\psi + \gamma$ process with γ reconstructed via e^+e^- conversions and studied the χ_{c1}/χ_{c2} production ratio. Wrote the track reconstruction code for the proposed DØ silicon tracker for Run IIb upgrade, and participated in performance studies that were incorporated into the DØ Run IIb Upgrade Technical Design Report. Contributed to simulation studies of the silicon microstrip detector and cluster reconstruction.

- 1994-99: CMS experiment at LHC, CERN

Wrote a track finding algorithm (Global Track Finder, GTF) for the CMS central tracker. Participated in studies of the CMS tracker performance, summarized in the Tracker Project Technical Design Report released in April 1998. Contributed to development of the principal CMS simulation reconstruction package (CMSIM) and later the object oriented reconstruction framework for the CMS analysis (ORCA). One of three authors of the CMS fast Monte Carlo simulation package (CMSJET) which has been extensively used for physics studies since 1994.

- 1989-96: 3m Magnet Spectrometer at ITEP Proton Synchrotron, Moscow, Russia

Participated in data collection and analysis on the following experiments: production of strange particles in baryon exchange processes (ITEP-875), quasi elastic (π -d) backward scattering on nuclei at 0.7-1.3 GeV (ITEP-901), pion double charge exchange on light nuclei at 0.7-1.3 GeV (ITEP-923), and search for d' dibaryon in pp interactions (ITEP-942).

Conference presentations

- Measurement of the top pair production cross-section in the lepton+jets channel at DØ using the Counting Signed Impact Parameter Method. Presented at APS 04, Denver, USA.
- Recent B Physics results from DØ . Presented at DIS 03, St Peterburg, Russia.
- The CMS tracker performance. Presented at BEAUTY 99, Bled, Slovenia.
- CMS tracking environment. Presented at Vienna Pattern Recognition Workshop (1996), Vienna, Austria.

Publications

Author of 62 publications. A representative list of publications on which I had major impact, includes:

- DØ collaboration. Run IIb Upgrade Technical Design Report. FERMILAB-PUB-02-327-E
- A. Khanov, M. Lenzi, T. Todorov, T. Speer, P. Vanlaer and M. Winkler. Tracking in CMS: software framework and tracker performance. Nucl.Instrum.Meth. A478:460-464,2002
- A. Caner, S. Banerjee, A. Khanov, N. Stepanov. Track and vertex finding performance with the CMS inner tracker. Nucl.Instrum.Meth.A435:118-143,1999
- CMS collaboration. The Tracker Project Technical Design Report. CERN/LHCC 98-6
- B. Abramov et al. Search for d' in pion inclusive spectra from pp interactions. Eur.Phys.J. A1:115-116,1998

- A. Khanov and N. Stepanov. Vertex finding with deformable templates at LHC. Nucl.Instrum.Meth. A389:177-179,1997

Author of 21 DØ notes, including:

- DØ Note 4141: Measurement of the $t\bar{t}$ production cross-section at $\sqrt{s} = 1.96$ TeV using lifetime tagging (with 6 co-authors).
- DØ Note 4049: b -tagging with Counting Signed Impact Parameter method (with two co-authors).
- DØ Note 3778: HTF: histogramming method for finding tracks.